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Job No.: CECTC/BBMP/KRIDL/W.No.14/Concrete cores/2016-17 19.12.2016

TEST REPORT

CEMENT CONCRETE CORE (PRECAST SLAB)

* **Customer** : **Asst. Executive Engineer,** Dasarahalli Sub Division, BBMP, Bangalore.

* **Agency** : **Technical Manager,** KRIDL, BBMP, Bangalore.

* **Name of work** : Asphalting to MEI Layout 12th main road connecting to Maramma Temple & other cross roads in MEI layout in Ward No.14, Bagalagunte, BBMP, Bangalore.

Techinical Reference : IS:516-1959 (Reaffirmed 2013), SP-24:1983.

Sample Received on : 17.12.2016

Date of Testing : 19.12.2016

* **Grade of Concrete** : M_{20}

Sl. No.	Dia of Core D (mm)	Height of Core H (mm)	Core Wt (Kg)	Density of Core (kg / m^3)	H / D	Correction factor (Based on H/D)	Failure Load (kN)	Core Strength (N/mm^2)	Correction Factor for the Dia. (Strength of the Core x 1.08)	Corrected Cylinder Compressive Strength (N/mm^2)	Equivalent Cube Compressive Strength (N/mm^2)
1	50.00	83.00	0.369	2264.22	1.66	0.960	32.50	16.55	17.88	17.16	21.45
2	50.00	85.00	0.377	2258.88	1.70	0.960	33.40	17.01	18.37	17.64	22.05
3	50.00	87.00	0.385	2253.78	1.74	0.960	31.85	16.22	17.52	16.82	21.02

Note:

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2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. □ Any Query regarding the report must be reported within 15 days from the date of testing

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ಬಿ.ಡಾಸರಹಳ್ಳಿ ಉಪ-ವಿಭಾಗ
ಬೆಂಗಳೂರು, ಬಿಬಿಎಂಪಿ

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Job No.: CECTC/BBMP/KRIDL/W.No.14/GSB-I/GR/2016-17 Date : 23.12.2016

GRADATION FOR GSB(Coarse Graded-1)
IS : 2720 (Part - 4)

Client : **Asst. Executive Engineer,** Dasarahalli Sub Division, BBMP, Bangalore.

Agency : **Technical Manager,** KRIDL, BBMP, Bangalore.

Name of work : Asphalting to MEI Layout 12th main road connecting to Maramma Temple & other cross roads in MEI layout in Ward No.14, Bagalagunte, BBMP, Bangalore.

Date of Testing : 23.12.2016

Sample Source : Mix Plant Bangalore. **Oven Dry Wt (gm) :** 6030

TABLE – 1

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specified Limits
75	-	-	-	100	100
26.5	1885	1885	31.26	68.74	55-75
4.75	2460	4345	72.06	27.94	10-30
0.075	1430	5775	95.77	4.23	<10
PAN	255				
Total	6030				

Remarks: Satisfies MORTH Specifications as per Table 400-2, Grading I

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Job No.: CECTC/BBMP/KRIDL/W.No.14/WMM/AIV/2016-17 **Date:** 30.12.2016

Aggregate Impact Value
IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Dasarahalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, BBMP, Bangalore.
Name of the Work	Asphalting to MEI Layout 12th main road connecting to Maramma Temple & other cross roads in MEI layout in Ward No.14, Bagalagunte, BBMP, Bangalore.
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	30.12.2016

Sl No.	Details	Trial No. 1	Trial No. 2	Trial No. 3	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	369	371	373	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	81	83	84	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	288	288	289	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	21.95	22.37	22.52	22.28

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

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Job No.: CECTC/BBMP/KRIDL/W.No.14/BM/Sp.Gr/2016-17 19.01.2017

Specific Gravity And Water Absorption Test

IS: 2386 Part III

Client	**Asst. Executive Engineer,** Dasarahalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, BBMP, Bangalore.
Name of the Work	Asphalting to MEI Layout 12th main road connecting to Maramma Temple & other cross roads in MEI layout in Ward No.14, Bagalagunte, BBMP, Bangalore.
Source / Location	Hotmix Plant, Bangalore.
Type of Mix	Bituminous Macadam
Date of Testing	19.01.2017

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2035	2028	2029	
2	Weight of basket suspended in water	W_2 g	752	752	752	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1283	1276	1277	
4	Weight of saturated surface dry aggregate in air	W_3 g	2015	2019	2020	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	732	743	743	
6	Weight of oven dried aggregate	W_4 g	2005	2008	2009	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.739	2.703	2.704	2.721
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.777	2.743	2.745	2.761
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.50%	0.55%	0.55%	0.52%

Comments:

→ Maximum allowable Aggregate Water absorption value for Bituminous Macadam is 2.0%

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Job No.: CECTC/BBMP/KRIDL/W.No.14/BC/AGG/2016-17 21.01.2017

Aggregate Gradation Test

IS : 2386 Part I

Client	**Asst. Executive Engineer,** Dasarahalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, BBMP, Bangalore.
Name of the Work	Asphalting to MEI Layout 12th main road connecting to Maramma Temple & other cross roads in MEI layout in Ward No.14, Bagalagunte, BBMP, Bangalore.
Sample I / D	Hot Mix Plant, Bangalore
Type of Mix	Bituminous Concrete
Date of Testing	21.01.2017

Total Weight of Sample: **5400** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	JOBMIX Gradation as per MORTH	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH
13.2	530	9.81	9.81	90.19	79 - 100	
9.5	565	10.46	20.28	79.72	70 - 88	
4.75	720	13.33	33.61	66.39	53 - 71	
2.36	640	11.85	45.46	54.54	42 - 58	
1.18	652	12.07	57.54	42.46	34 - 48	
0.600	620	11.48	69.02	30.98	26 - 38	
0.300	618	11.44	80.46	19.54	18 - 28	
0.150	325	6.02	86.48	13.52	12 - 20	
0.075	420	7.78	94.26	5.74	4 - 10	

Total Weight of Sample: **4850** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	JOBMIX Gradation as per MORTH	Remarks
19	0	0	0	100	100	Gradation satisfies Bituminous concrete Grade-II specification as per MORTH
13.2	656	13.53	13.53	86.47	79 - 100	
9.5	485	10.00	23.53	76.47	70 - 88	
4.75	635	13.09	36.62	63.38	53 - 71	
2.36	524	10.80	47.42	52.58	42 - 58	
1.18	653	13.46	60.89	39.11	34 - 48	
0.600	545	11.24	72.12	27.88	26 - 38	
0.300	325	6.70	78.82	21.18	18 - 28	
0.150	360	7.42	86.25	13.75	12 - 20	
0.075	325	6.70	92.95	7.05	4 - 10	

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Job No.: CECTC/BBMP/KRIDL/W.No.14/BC/Sta/2016-17 21.01.2017

TEST REPORT ON STABILITY OF MIX

Client	:	**Asst. Executive Engineer,** Dasarahalli Sub Division, BBMP, Bangalore.
Agency	:	**Technical Manager,** KRIDL, BBMP, Bangalore.
Name of the Work	:	Asphalting to MEI Layout 12th main road connecting to Maramma Temple & other cross roads in MEI layout in Ward No.14, Bagalagunte, BBMP, Bangalore.
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	21.01.2017

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	9.90	10.10	9 Kn (min)
2	Marshal flow, mm	2.36	3.20	2 – 4
3	Percent air voids in Mineral Aggregate	14.27	13.35	13 – 15
4	Voids in Compacted Mix	5.60	4.70	3 – 6
5	Percent Voids filled with Bitumen	69.45	70.30	65 - 75
6	Density, g/cc	2.25	2.26	--

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